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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,219	11/17/2003	Shinji Maekawa	740756-2670	2735

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EXAMINER

SCHILLINGER, LAURA M

ART UNIT PAPER NUMBER

2813

DATE MAILED: 01/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/713,219

Applicant(s)

MAEKAWA ET AL.

Examiner

Laura M. Schillinger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 2,4-7,9,11-17,19,21-26,28,30-35,37 and 39-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,8,10,18,20,27,29,36 and 38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/9/05.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of claims 1, 3, 8, 10, 18, 20, 27, 29, 36 and 38 in the reply filed on 2/25/05 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 8, 10, 18, 20, 27, 29, 36, 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakamura et al (US 2002/0134981).

Nakamura teaches the following claimed limitations as cited below:

1. A method for fabricating a thin film transistor, comprising:  
forming a first amorphous semiconductor film (page 4, 0059);  
forming a material including a metal element to promote crystallization over the first amorphous semiconductor film (page 4, 0060);

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heating the first amorphous semiconductor film to form a first crystalline semiconductor film (page 5, 0062);

forming a second amorphous semiconductor film over the first crystalline semiconductor film (page 5, 0070);

heating the first crystalline semiconductor film and the second amorphous semiconductor film (page 6, 0073);

removing the second amorphous semiconductor film (page 6, 0076); and

wherein the second amorphous semiconductor film contains nitrogen at a concentration of  $1 \times 10^{18}$  atoms/cm or lower (page 9, 0117-nitrogen is a member of Group 15), oxygen concentration is  $8 \times 10^{19}$  or lower (page 3, 0022), and a noble gas concentration is  $1 \times 10^{20}$  atoms/cm<sup>3</sup> or higher (page 3, 0023, see also page).

3. A method for fabricating a thin film transistor, comprising:

forming a first amorphous semiconductor film (page 4, 0059);

forming a material including a metal element to promote crystallization over the first amorphous semiconductor film (page 4, 0060);

heating the first amorphous semiconductor film to form a first crystalline semiconductor film (page 5, 0062);

forming a second amorphous semiconductor film over the first crystalline semiconductor film (page 5, 0070);

heating the first crystalline semiconductor film and the second amorphous semiconductor film (page 6, 0073);

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removing the second amorphous semiconductor film (page 6, 0076); and

wherein the second amorphous semiconductor film contains nitrogen at a concentration of  $1 \times 10^{18}$  atoms/cm or lower (page 9, 0117-nitrogen is a member of Group 15), oxygen concentration is  $8 \times 10^{19}$  or lower (page 3, 0022), and a noble gas concentration is  $1 \times 10^{20}$  atoms/cm<sup>3</sup> or higher (page 3, 0023).

8. A method for fabricating a thin film transistor according to claim 1, wherein the second amorphous semiconductor film is formed by sputtering (page 5, 0070).

10. A method for fabricating a thin film transistor according to claim 3, wherein the second amorphous semiconductor film is formed by sputtering (page 5, 0070).

18. A method for fabricating a thin film transistor according to claim 1, wherein the second amorphous semiconductor film is removed by dry etching using hydrazine or tetramethyl ammonium hydroxide (page 6, 0076).

20. A method for fabricating a thin film transistor according to claim 3, wherein the second amorphous semiconductor film is removed by dry etching using hydrazine or tetramethyl ammonium hydroxide (page 6, 0076).

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27. A method for fabricating a thin film transistor according to claim 1, wherein the noble gas element is one element or more elements selected from a group' consisting of helium (He), neon (Ne), argon (Ar), krypton (Kr), and xenon (Xe) (page 6 (0072).

29. A method for fabricating a thin film transistor according to claim 3, wherein the noble gas element is one element or more elements selected from a group' consisting of helium (He), neon (Ne), argon (Ar), krypton (Kr), and xenon (Xe) (page 6, 0072).

36. A method for fabricating a thin film transistor according to claim 1, wherein the metal element is one element or more elements selected from a group consisting of iron (Fe), nickel (Ni), cobalt (Co), ruthenium (Ru), rhodium (Rh), palladium (Pd), osmium (Os), iridium (Ir), platinum (Pt), copper (Cu), and gold (Au) (page 5, 0068).

38. A method for fabricating a thin film transistor according to claim 3, wherein the metal element is one element or more elements selected from a group consisting of iron (Fe), nickel (Ni), cobalt (Co), ruthenium (Ru), rhodium (Rh), palladium (Pd), osmium (Os), iridium (Ir), platinum (Pt), copper (Cu), and gold (Au) (page 5, 0068).

### ***Response to Arguments***

Applicant's arguments filed 9/6/05 have been fully considered but they are not persuasive. Applicant argues that Nakamura fails to teach a second amorphous silicon layer having the claimed concentrations recited in claim 1. Such an assertion is incorrect, Nakamura teaches in multiple places a second amorphous silicon layer having the claimed concentration;

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for example, page 6,[0071- layer 107 is the second amorphous silicon layer]; page 7[0083]; [0091] etc... Applicant is responsible for the reference as a whole. The rejection is therefore deemed final.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

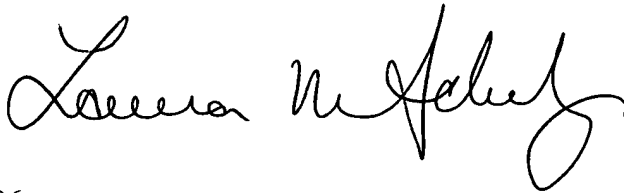
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M. Schillinger whose telephone number is (571) 272-1697. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W. Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Laura M Schillinger", written in a cursive style.

Laura M Schillinger  
Primary Examiner  
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1/5/06